

## Patient Satisfaction with Clinical Laboratory Services in Public Health Sector Hospitals of Azad Kashmir, Pakistan

Bilal Khalid, Freeha Ayyub\*, Midhet Nasim\*, Ayesha Babar, Saad Alam Khan

Al-Shifa School of Health Public Health, Rawalpindi Pakistan, \*Al-Shifa Trust Eye Hospital, Rawalpindi Pakistan

### ABSTRACT

**Objectives:** To determine patient satisfaction and factors affecting patient satisfaction with laboratory services in Azad Jammu & Kashmir (AJK).

**Study Design:** Cross-sectional study.

**Place and Duration of Study:** Seven District Headquarter Hospitals, DHQ Neelum, DHQ Hattian Bala, DHQ Pallandari, DHQ Bagh, DHQ Kotli, DHQ Bhimber and DHQ Mirpur, Kashmir Pakistan from Dec 2019 to Feb 2020.

**Methodology:** The patients who were referred from the Outdoor Patient Department of the hospital for undergoing investigative tests were included, and patients of age less than 18 and critically ill patients were excluded.

**Results:** The total number of respondents included in the study was 400, with the median score of patient satisfaction with laboratory services being 59 (19), ranging from 32 to 100. Statistically significant disparities in client satisfaction were observed in different DHQ hospitals ( $p$ -value=0.01) with Mirpur (63) and Pallandri (40) showing the extreme variation. Residential area, age, and education level were also identified as statistically significant determinants of patient satisfaction ( $p$ -value <0.05).

**Conclusion:** patient satisfaction with laboratory services in public hospitals of AJK was very low, and targeted strategies are needed to improve the overall quality of these services.

**Key Words:** Azad Jammu Kashmir, COVID-19, DHQ hospital, Laboratory services, Patient satisfaction.

**How to Cite This Article:** Khalid B, Ayyub F, Nasim M, Babar A, Khan SA. Patient Satisfaction with Clinical Laboratory Services in Public Health Sector Hospitals of Azad Kashmir, Pakistan. *Pak Armed Forces Med J* 2022; 72(4): 1401-1405. DOI: <https://doi.org/10.51253/pafmj.v72i4.7336>

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<https://creativecommons.org/licenses/by-nc/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

### INTRODUCTION

Patient satisfaction is the degree of congruency between a patient's expectations of the idea of care and his/her perception of the real care received by the hospital.<sup>1</sup> The World Health Organization (WHO) has established that the patient satisfaction survey may address the various aspects of services provided, such as reliability and consistency of the services, service responsiveness, and the providers' willingness to meet the patient's expectation.<sup>2</sup> Accurate and reliable clinical laboratory services are considered the backbone of healthcare services. It is an essential component of curative and preventive healthcare activities worldwide.<sup>3</sup> The joint commission on accreditation of the Healthcare organization (JCAHO) and the College of American Pathologists (CAP) are the two major organizations that accredit the laboratories based on patient satisfaction.<sup>4</sup> Patient satisfaction towards laboratory services is influenced by different aspects of these services, such as the location of the laboratory in the hospital, availability of the required laboratory test, the competency of the staff, the provision of adequate information from the staff about specimen collection

during testing, the situation of hygiene in the laboratory, and the waiting time of the laboratory results.<sup>5</sup> Over the years, different medical services introduced concepts, e.g., point-of-care (POC) testing, to improve quality services.<sup>6</sup> In Pakistan, most of the patient satisfaction studies had focused on specific areas such as the emergency department and satisfaction with inpatient care.<sup>7</sup> However, to our knowledge, limited data is available on the patient's satisfaction with the clinical laboratory services. To the best of the authors' knowledge, there is a dire lack of adequate data on this matter in Azad Jammu & Kashmir (AJK), and the availability of this data can be vital for strengthening the health system in AJK. Hence, this study aims to assess patient satisfaction with laboratory services provided and associated factors at District Headquarter Hospitals (DHQ) of AJK.

### METHODOLOGY

This cross-sectional study was conducted at the Clinical Laboratories of DHQs of Azad Jammu and Kashmir (AJK), situated in the north of Pakistan, with a total area of 13,297 square kilometres and a population of 4.04 million. It is divided into ten administrative districts, but only seven have DHQ hospitals, namely Neelum, Hattian Bala, Pallandari, Bagh, Kotli, Bhimber, and Mirpur. Data was collected from the

**Correspondence:** Dr Bilal Khalid, Manager HR Quaid-e-Azam University Islamabad, Pakistan

Received: 30 Aug 2021; revision received: 20 Jun 2022; accepted: 22 Jun 2022

patients for three months, from December 2019 to February 2020. Permission was taken from the Ethical review committee of Al- Shifa Trust Eye Hospital (Reference No: ERC-63/AST-20) and the Health Ministry of the AJK Government before data collection.

Although initially the study was planned for a longer duration, we had to reduce it due to the start of the COVID-19 pandemic. The sample size was calculated by Openepi software using a population of AJK 4.405 million, anticipated frequency of 50% at a 95% confidence interval.<sup>8</sup>

**Inclusion Criteria:** All patients referred to the Clinical Laboratory of DHQs to undergo investigative tests were included in the study.

**Exclusion Criteria:** The patients with an age of fewer than 18 years, not willing to participate, and critically ill individuals who could not respond at the time of the study were excluded.

A structured questionnaire was used for data collection, based on similar literature,<sup>9,10</sup> and was finalized after a pilot test on fifty individuals. The outcome variable of the study was patient satisfaction with laboratory services, measured on a 21-item scale. A 5-point Likert scale ranged from very dissatisfied (score=1) to very satisfied (score=5). The first part of the questionnaire collected information about socio-demographics. In contrast, the second part included questions about the patient's satisfaction with the quality of services provided, availability and competency of the staff, waiting time throughout the procedure, and clinical environment like the cleanliness of toilets and other basic testing area facilities. Moreover, verbal informed consent was also taken from every individual before participation, and confidentiality was maintained at every step of the study.

Statistical Package for Social Sciences (SPSS) version 21.0 was used for the data analysis. Reliability analysis of the scale was done with a Cronbach alpha value of 0.89 for the patient satisfaction scale. The descriptive analysis was done on the categorical and continuous variables. Percentages and frequencies were reported for categorical variables, and mean, and standard deviation were reported for continuous variables. The 5-point Likert on the 21-item scale was transformed into one final continuous variable. As the data was not normally distributed, the median and Interquartile range (IQR) was calculated, and a non-parametric approach was utilized during inferential analysis where Mann-Whitney U and Kruskal Wallis test was applied.

## RESULTS

The data was collected from 400 patients visiting seven DHQ hospitals in AJK during the study period. Female respondents were more common in sample (64.30%), with almost half of the women living as housewives (195,48.40%). Many patients were from Mirpur DHQ (n=75), followed by 65 patients from Kotli, Palandri, Bagh, and Bhimber. Patients from Hattian Balan had a frequency of 35, and the least number of patients were seen in Neelum DHQ (n=30) (Table-I).

**Table-I: Soc-demographic characteristic of the patient (n=400)**

Socio-demographic Characteristics	Frequency (%)	
Age	18-30 years	100 (25.00)
	31-40 years	179 (44.80)
	41-50 years	107 (26.80)
	51 years & above	14 (3.500)
Distance traveled to reach hospital	0-20km	94 (23.50)
	21-100km	292 (73.00)
	More than 100km	14 (3.500)
Education	Illiterate	168 (42.00)
	Primary	87 (21.80)
	Secondary or above	145 (36.30)
Gender	Female	257 (64.0)
	Male	143 (35.80)
Marital Status	Married	332 (83.00)
	Unmarried	68 (17.00)
Number of visits	1st visit	135 (33.80)
	2nd visit	163 (40.80)
	3rd visit or more	102 (25.50)
Occupation	Employee	125 (31.30)
	Housewife	195 (48.80)
	Student	37 (9.300)
	Unemployed	43 (10.80)
Residence	Rural	379 (94.80)
	Urban	21 (5.300)
Type of test	Baseline tests	199 (49.80)
	Biochemistry	103 (25.80)
	Histopathology	15 (3.80)
	Microbiology	62 (15.50)
	Special chemistry	21 (5.30)

One-fourth of the patients reported difficulty finding the laboratory. On the other hand, more than 80% of patients did not develop bruises after phlebotomy, and 290 (72.50%) respondents were not happy with the prices of the tests. As far as the laboratory facilities were concerned, all the patients said there was no place to keep their belongings safe while they were giving their samples. Moreover, 320 (80.00%) patients said they could not find the cashier's office conveniently.

The 5-point Likert on the 21-item scale was transformed into one final continuous variable. As the data was not normally distributed, the median and Interquartile range (IQR) were calculated to be 59 (19) with a minimum satisfaction score of 32, whereas the maximum score was 100, respectively. (Table-II).

## DISCUSSION

Patient satisfaction is considered one of the most important indicators of quality of health care services, and it helps identify the shortcomings within the

**Table-II: Patient Satisfaction Parameters (n=400)**

Parameters	Very Dissatisfied n (%)	Dissatisfied n (%)	Neutral n (%)	Satisfied n (%)	Very Satisfied n (%)
Cleanliness of waiting area	70 (17.50)	180 (45.00)	74 (18.50)	76 (19.00)	0(0)
Adequacy of sitting arrangement	44 (11.00)	171 (42.80)	47 (11.80)	138 (34.50)	0(0)
Staff availability in working hours	0(0)	26 (6.50)	102 (25.50)	269 (67.30)	3 (0.80)
Sample collection area	37 (9.30)	212 (53.00)	50 (12.50)	99 (24.80)	2 (0.50)
Attitude/conduct of lab staff	14 (23.50)	75 (18.80)	113 (28.30)	193 (48.30)	5 (1.30)
Toilet accessibility for specimen collection	111 (27.80)	163 (40.80)	56 (14.00)	70 (17.50)	0(0)
Cleanliness of toilet	258 (64.50)	116 (29.00)	13 (3.30)	13 (3.30)	0(0)
Provision of Information about report time	0(0)	16 (4.00)	194 (48.50)	190 (47.50)	0(0)
Competency of lab staff performance	2 (0.50)	76 (19.00)	111 (27.80)	207 (51.80)	4 (1.00)
Explain procedure before examination	4 (1.00)	226 (56.50)	73 (18.30)	97 (24.30)	0(0)
Number of needle stick attempt	0(0)	118 (29.50)	123 (30.80)	159 (39.80)	0(0)
Labeling of sample	0(0)	23 (5.80)	158 (39.50)	219 (54.80)	0(0)
Way of keeping record	0(0)	106 (26.50)	153 (38.30)	141 (35.30)	0(0)
Privacy assurance	296 (74.00)	104 (26.00)	0(0)	0(0)	0(0)
Confidentiality	162 (40.50)	134 (33.50)	104 (26.00)	0(0)	0(0)
Waiting time for services	14 (3.50)	47 (11.80)	95 (23.80)	223 (55.80)	20 (5.00)
Ease in finding department	10 (2.50)	46 (11.50)	51 (12.80)	267 (66.80)	26 (6.50)
Signboard for sampling and toilet	6 (1.50)	117 (29.30)	2 (0.50)	259 (64.80)	16 (4.00)
Availability of lab test	181 (45.30)	171 (42.80)	20 (5.00)	26 (6.50)	2 (0.50)
Management of waste disposal (colored bins)	252 (63.00)	65 (16.30)	30 (7.50)	53 (13.30)	0(0)
Overall satisfaction	167 (41.80)	192 (48.00)	22 (5.50)	19 (4.80)	0(0)

Satisfaction score was significantly ( $p$ -value=0.01) greater for patients who did not develop the bruise than for ones who developed it after the test (Table-III).

**Table-III: Mann-Whitney U test result for Patient Satisfaction**

Parameters	Study Groups n (%)		p-value
	Group A (n=400)	Group B (n=400)	
Gender	59 (20)	59 (17)	0.44
Residence	63 (5)	59 (19)	0.01
Marital Status	59 (19)	61 (20)	0.04
Ease of finding the lab	58 (19)	62 (20)	0.01
Finding cashier office	61 (9)	43 (5.75)	0.01
Develop bruise after phlebotomy	43.50 (22)	60 (16)	0.01
Fair price for the test	60 (16.25)	59 (20)	0.15

Statistically significant effect of education on satisfaction level ( $p$ =0.01) was observed. The patient satisfaction in different age groups suggested that satisfaction score significantly increases equally for both primary and secondary education holding patients (Table-IV).

system and can have serious implications for the planning and implementation of health system reforms. This can be pivotal for laboratory services as the utilization of different laboratory tests can be directly associated with patient satisfaction, so this study aimed to measure patient satisfaction with lab services in government DHQ hospitals in AJK and factors associated with the satisfaction of patients during lab testing. In the present study, the median value for patient satisfaction with laboratory services was 59 (19), with a minimum score of 32 and the maximum score of 100.

This translates into 56.20%, varying from 30.50% to 95.20%. Comparatively, a higher score for patient satisfaction (72% or 3.6/5) with laboratory services was reported in the public hospitals of Khyber Pakhtunkhwa (KPK), the neighbouring province of AJK.<sup>11</sup> Patient satisfaction of 65.70%, 62.00% and 78.6% were reported from laboratories in the public hospitals of Karachi, Lahore and Ethiopia, respectively.<sup>12,13,14</sup> These findings reveal that the lowest level of satisfaction has been reported in the public health facilities of AJK. The

Table-IV: Kruskal Wallis Test Result for Patient Satisfaction

Parameters	Study Groups n (%)				p-value
	Group A (n=400)	Group B (n=400)	Group C (n=400)	Group D (n=400)	
Age	61 (16.75)	60 (16)	59 (20)	41 (7)	0.01
Distance travelled to reach hospital	61 (12.5)	59 (19)	57 (22.50)	0(0)	0.12
Education	54 (20)	61 (17)	61 (11)	0(0)	0.01
Number of visit	59 (22)	59 (15)	60 (19)	0(0)	0.53
Occupation	61 (8)	59 (20)	51 (19)	48 (20)	0.01

general trend in Pakistan shows that patient satisfaction is higher in private hospitals than in public hospitals. However, no studies were conducted in private hospitals of AJK.<sup>15,16</sup> Accessibility of different hospital facilities may affect the satisfaction of the patient, like easiness in finding the laboratory and toilet for the urine sample. In the current study, only 66.80% and 17.50% respectively showed satisfaction; this is not in accordance with the study conducted in Ethiopia, where 19% and 22% of respondents could not find the laboratory and toilet.<sup>14</sup>

The patient would have a negative impression about the laboratory if they do not find the required test, proper sampling area, waiting area lack sitting arrangement or not in the good conditions all these factors ultimately affect their satisfaction level. In the current study, 42.80%, 53.00%, 42.80% and 45% showed dissatisfaction with the required test, sampling area, sitting arrangement of waiting area and cleanliness of waiting area, respectively. The results were in accordance with a study conducted in Ethiopia.<sup>15</sup>

Our study identified that participants who got bruised after the phlebotomy procedure had lower patient satisfaction ( $\bar{x} = 43.5$ ) than those who did not have it ( $\bar{x} = 60$ ), and the results were statistically significant ( $p$ -value= 0.01). While the direction of the association may vary, multiple studies have reported this finding<sup>16</sup>. Based on the relationship between low satisfaction and low service utilization, high bruising might even influence the level of service utilization.

The current study reported that among the total, 53% of respondents complained that was no good sample drawing area for blood samples and no place to keep their belongings while giving the sample, and 29.5% reported they punctured more than one time during sample drawing. This study is in accordance with a study conducted in Ethiopia.<sup>17</sup> The territory of Kashmir has been a constant subject of dispute between Pakistan and India since the division of the sub-continent. Consequently, the region has been plagued with armed conflicts of smaller scale as well

as full-blown wars over the years.<sup>18</sup> This has produced widespread detrimental social, economic, political, and adverse health-related outcomes in the region. Furthermore, the health system of AJK suffered massive losses during the earthquake of 2005, and many would argue that rehabilitation and reconstruction are still to be entirely completed.<sup>19</sup> Hence, the healthcare staff got overburdened and undervalued, which reduced their effectiveness in providing quality health care services in the hospital and affected the patients' satisfaction.

#### LIMITATIONS OF STUDY

A limited sample size due to the pandemic of COVID-19 is a major limitation of this study. In addition, the data collected from the patients within the hospital setting may give a favouring response resulting in the social desirability bias. Furthermore, this study did not assess the laboratory personnel's awareness of customers' needs and set up each hospital laboratory. This perspective can also be very valuable in describing the quality and effectiveness of laboratory health services. Lastly, patient satisfaction can be explored better if qualitative interviews are also conducted in addition to quantitative assessment, which was missing in this study.

#### CONCLUSION

Patient satisfaction with laboratory services in public hospitals of AJK was very low, and targeted strategies are needed to improve the overall quality of these services.

**Conflict of Interest:** None.

#### Author's Contribution

BK: Data collection, write-up, FA: Write-up, MN: Analysis, AB:, SAK: Critical analysis.

#### REFERENCES

1. Soleimanpour H, Gholipouri C, Salarilak S. Emergency department patient satisfaction survey in Imam Reza Hospital, Tabriz, Iran. *Int J Emerg Med* 2011; 4(1) 1-7.
2. Workbook 6. Client Satisfaction Evaluations. Geneva: World Health Organization; 2000, [Internet] Available at: [https://whqlibdoc.who.int/hq/2000/WHO\\_MSD\\_MSB\\_00.2g.pdf](https://whqlibdoc.who.int/hq/2000/WHO_MSD_MSB_00.2g.pdf)
3. Mekonnen A, Teklemariam Z, Kedir H, Kabew G. Patient Satisfaction with Laboratory Services in Selected Government Hospitals, Eastern Ethiopia. *Harar Bull Health Sci* 2011; 1(3): 12-24.
4. Barbé B, Yansouni CP, Affolabi D, Jacobs J. Implementation of quality management for clinical bacteriology in low-resource settings. *Clin Microbiol Infect* 2017; 23(7): 426-433.

## Clinical Laboratory Services in Public Health

5. Aleign A, Belay YA. Patient satisfaction with clinical laboratory services and associated factors among adult patients attending outpatient departments at Debre Markos referral hospital, Northwest Ethiopia. *BMC Res Notes* 2019; 12(1): 517.
6. Laurence CO, Gialamas A, Bubner T, Yelland L, Willson K, Ryan P, et al. Patient satisfaction with point-of-care testing in general practice. *Br J Gen Pract* 2010; 60(572): 98-104.
7. Toma G, Triner W, McNutt LA. Patient satisfaction as a function of emergency department revisit expectations. *Ann Emerg Med* 2009; 54(3): 360-367.
8. Khan ML, Jawaid M, Hafeez K. Patients' receptiveness for Medical students during consultation in Outpatient department of a teaching hospital in Karachi Pakistan. *Pak J Med Sci* 2013; 29(2): 454-457.
9. State of AJ&K. The university of Azad Jammu Kashmir. Available at: <https://ajku.edu.pk/state-of-ajk/>. [Accessed on February 11, 2022].
10. Tadele G, Ejeta E, Desalegn M, Abere S, Elias K. Patient's satisfaction on clinical laboratory services at Nekemte Referral Hospital, Oromia, Ethiopia. *Food Sci Qual Manag* 2014; 30: 25-30.
11. Manzoor F, Wei L, Hussain A. Patient satisfaction with health care services; an application of physician's behavior as a moderator. *Int J Environ Res Public Health* 2019; 16(18): 1-16.
12. Raheem AR, Nawaz A, Fouzia N. Patients' Satisfaction and Quality Health Services : An Investigation from Private Hospitals of Karachi, Pakistan. *Res J Recent Sci* 2014 ; 3(7): 34-38.
13. Farooq MM, Irfan AI. Patient Satisfaction and Service Quality of Public Hospitals in Pakistan: An Empirical Assessment. *Middle East J Sci Res* 2012; 12(6): 870-877.
14. Hailu HA, Desale A, Yalew A, Asrat H, Kebede S, Dejene D, et al. Patients' satisfaction with clinical laboratory services in public hospitals in Ethiopia. *BMC Health Serv Res.* 2020; 20(1): 1-9.
15. Khattak A, Alvi MI. Patient Satisfaction ? A Comparison between Public & Private Hospitals of Peshawar. *Int J Collab Res Intern Med Public Heal.* 2012; 4(5): 713-722.
16. Ghazanfar A, Idress IN, Zia Z, Munir N, Maryam S. Comparison of patients satisfaction levels in public and private tertiary care centres. *J Pakistan Med Assoc* 2017; 67(8): 1305-1308.
17. Teklemariam Z, Mekonnen A, Kedir H, Kabew G. Clients and clinician satisfaction with laboratory services at selected government hospitals in eastern Ethiopia. *BMC Res Notes* 2013; 6(1): 1-7.
18. Dawar R. Patient satisfaction of phlebotomy services in a tertiary care hospital. *Int J Curr Res Aca Rev* 2015; 3(6): 35-38.
19. Cheema MJ. Pakistan-India conflict with special reference to Kashmir. *Int J South Asian Stud* 2020; 30(1): 26.

.....